REMARKS

Status of the Claims

In the Office Action, claims 1-22 were noted as pending in the application. All claims stand rejected. It is not apparent to Applicant that claim 12 has been rejected, as this claim was not addressed as being rejected in the detailed evaluation sections of the office action. It is noted that on the Office Action Summary sheet Examiner stated that all claims are rejected. Clarification is respectfully requested.

A. Rejection of Claims 1 and 10 under 35 U.S.C. § 102(e).

On page 2 of the Office Action, claims 1 and 10 stand rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent Number 6,223,222 to Fijolek, *et. al.*, ("Fijolek"). The reasons that the claims patentably distinguish over the reference are addressed below.

B. Rejection of Claims 2-9, 11 and 13-18 under 35 U.S.C. § 103(a).

Beginning on page 42 of the Office Action, claims 2-9, 11 and 13-18 stand rejected under 35 U.S.C. § 103 as being obvious. The reasons that the claims patentably distinguish over the reference are addressed below.

C. Summary of Cited References

Before addressing the Examiner's rejections, a brief summary of the cited references is provided.

Fijolek, *et. al.* - U.S. Patent Number 6,223,222 ("Fijolek")

Fijolek relates to providing quality-of-service to a cable modem ("CM") from a cable modem termination system ("CMTS") upon a request from the CM to establish a connection with the CMTS. Col. 34, lines 12-37. If the CMTS has enough available bandwidth to accommodate the amount of bandwidth requested by the CM, a connection with the requested amount of bandwidth is established between the CMTS and the CM. Id. If enough bandwidth is not available at the CMTS, the requested quality of service is denied. Id. A quality-of-service ("QoS") server subtracts from a total available bandwidth amount the amount that is allocated when a connection session is established. Col. 36, lines 44-61. When a CM disconnects from a CMTS, the QoS server adds the bandwidth allocated to the CM back to the available amount. Id. When a CM requests more than is available, the server denies a session QoS request.

Vogel - U.S. Patent Number 6,742,187 ("Vogel")

Vogel relates to upstream channel change. Col. 4, lines 13-14. An upstream channel change ("UCC") takes longer to complete that the claimed subject matter. Col. 13, lines 26-30. In the claimed method, a cable modem monitors MAP messages in its current channel and other channels that are carried over a link between a CMTS and a cable modem. When a unicast opportunity is available on one of the other channels, the cable modem shifts is upstream channel to the alternate channel having the available unicast channel. Col. 13, lines 38-50.

Allen - U.S. Patent Number 6,850,965 ("Allen")

Allen relates to the delivery of multimedia content over a variety of networks. More specifically, it pertains to multimedia servers which service many clients simultaneously for the delivery of multimedia content which is used and played back at each client. Col. 1, lines 14-18. "In essence, little or no CAC procedure [is] implemented" in efficiently using bandwidth across multiple user connections. Portions of a program are 'burst-transmit[ted]' so that the transmission system "'gets ahead of itself', thus allowing headroom for a myriad of methods to intelligently handle new clients, client interactivity and possible network fluctuations." Col. 3, lines 6-12.

Yao, *et. al.* - U.S. Patent Number 6,097,697 ("Yao")

Yao relates to congestion control in a communication network. Col. 2, lines 7-8. A combination of multiple congestion-indicators is used by a congestion control mechanism to control transmission rate. Col. 2, lines 10-13.

Selinger - U.S. Patent Number 6,345,038 ("Selinger")

Selinger relates to a system for improving service provided to users requesting service while a predefined congestion limit is being exceeded. Abstract. "The [] invention seeks to alleviate inconveniences to network users caused by the foregoing practice of unconditionally rejecting requests for new or addition access services when traffic at a station receiving such requests is above a defined limit of congestion. Col. 2, lines 44-48. When a user requests service and the system is oversubscribed, all users, including current users, are subject to having their service downgraded. Col. 5, lines 40-43. A routine may be used to provide conditional restoration of service levels for users whose service was downgraded when the last user's session was established. Col. 5, lines 57-58.

D. Discussion of current office action

Examiner states that Applicant's remarks in the Amendment that was responsive to the first office action are not persuasive. Examiner states that he interprets a cable modem to be an internet service provider that provides internet service to a subscriber. Applicant directs Examiner to the enclosed excerpt from Wikipedia, which is an online dictionary that can be updated by anyone who can access the web site www.wikipedia.com. Thus, whether a definition on Wikipedia is accurate or not, it reflects what others believe a definition of a term to be. Since definitions of technical terms are likely to be updated by individuals familiar with the term, Wikipedia is arguably an ideal reference for how one skilled in the art would interpret a term. As shown in the enclosed excerpt from Wikipedia, a cable modem is not an internet service provider. Thus, Examiner's stated interpretation of the phrase 'internet service provider' should not be used.

Furthermore, on page 10 of the specification, AOL and Prodigy are referenced as ISPs at lines 1-3. In describing FIG. 3, the Ethernet links are described as being connected between a router 310 and the CMTS. The router 310 is connected to AOL 312 and Prodigy 314. On the other side of the CMTS are a plurality of channels 316 which are connected to a plurality of cable modems. Page 2, lines 4-7.

Words of a claim are to be given their plain meaning unless the applicant has provided a clear definition in the specification. MPEP §2111.01, citing *In re Zletz*, 893 F.2d 319, 321. In the present application, as defined in the Wikipedia excerpt, the plain meaning of the term ISP is a company or organization that provides internet services to a user. Furthermore, the specification, including the drawings, show that a cable modem is not an internet service provider. Both extrinsic evidence (Wikepedia) and intrinsic evidence (the specification) indicate that a cable modem is not an ISP.

Regarding definition of claim term, "[a[pplicant may be his or her own lexicographer as long as the meaning assigned to the term is not repugnant to the term's well known usage." MPEP §211.01, citing *In re Hill*, 161 F.2d 367. "Any special meaning assigned to a term 'must be sufficiently clear in the specification that any departure from common usage would be so understood by a person of experience in the field of the invention.'" *Id.*, citing *Multiform Dessiccants Inc. v. Medzam Ltd.*, 133 F.3d 1473. As discussed above, the plain meaning and the specification define an internet service provider as providing internet services. The specification and drawings show that an internet service provider connect on one side (logically, not necessarily physically) of a CMTS, and that cable modems connect to the other side of a CMTS. Thus, notwithstanding that the plain meaning of ISP as understood by those skilled in the art excludes cable modems, the specification also defines an ISP as being something other than a cable modem. Thus, Examiner's previously stated interpretation of the term ISP should not be used in evaluating the claims vis-à-vis the reference(s).

In response to Examiner's statement that Applicant relies on features that are not recited in the claims, Applicant points out that the statement in the previous Amendment is accurate. Applicant stated that "[t]he claims expressly relate to the links between a plurality of ISPs and a CMTS." Original claim 1 recited "[a] method of controlling traffic loading on links between a cable modem termination system (CMTS) and a plurality of Internet Service Providers (ISP) in a cable data system . . . ." This passage is found in the preamble of the claim, as pointed out in the previous Amendment.

Notwithstanding that Applicant believes that the terms 'links between a cable modem termination system and a plurality of Internet Service Providers' do not need further definition because one skilled in the art would know what the term means, the preamble may be used to interpret a claim term if it is essential to point out the invention defined by the claim. MPEP §2111.02, citing Kropa v. Robie, 187 F.2d 150. Thus, the term 'links' in the elements of the claim following the preamble is defined by the preamble.

In the previous Amendment, Applicant was not relying on the feature of a 'physical link', as stated by Examiner in the present office action. Applicant was relying on the term 'link', which is recited in the claim elements as filed, as previously amended and as currently amended. Reference to this term in the previous Amendment was used to show that the bandwidth being addressed by the claim limitations is the bandwidth between an ISP and the CMTS, not between the CMTS and a cable modem. However, the claims are currently amended to expressly recite in the claim elements the limitation of 'physical links', as opposed to just 'links'. Since the specification refers to the term 'links' in the specification as being Ethernet links connected from the CMTS to a router, page 10, lines 4-6, the scope of the claims is not changed by this Amendment, because an Ethernet link connected between a CMTS (a piece of equipment) and a router (another

piece of equipment) would imply to one skilled in the art a physical connection between two physical pieces of equipment.

With respect to Examiner's addressing of Applicant's assertion that there is no suggestion to combine the references, Examiner replied with a summary of the law related to this element of the *prima facie* case of obviousness. However, Examiner did not respond by showing how the references, as applied according to the law of obviousness, provided a suggestion to combine the references. Therefore, Applicant maintains that Examiner has not carried his burden of showing that there is a suggestion to combine the references. Applicant presented an argument based on the teachings of the references with respect to the claim limitation why the cited reference does not provide a suggestion to combine. Examiner has not substantively addressed this argument in the present office action. Accordingly, Applicant maintains its argument and withdrawal of the rejection is respectfully requested.

With respect to Examiner's statement that Applicant's argument regarding no likelihood of success in combining the references is "suppositional conjecture", Applicant disagrees. Suppositional and conjecture are synonyms referring to a theory or hypothesis. Applicant's argument that the changing of links before establishment of a session is simply a logical one, not a theoretical one. Claim 4 claims that the determination of available bandwidth is made prior to transferring the subscriber's request to a different link if the current link does not have enough available bandwidth to provide the requested service. The Vogel reference discloses the changing of upstream channels (not links) after a session has begun, according to unicast opportunities becoming available. The thrust of Applicant's argument is that to combine Vogel's teaching with knowledge known in the art would not result in success in achieving the subject matter claimed in claim 4 because to do so would violate the essence of the claim. If upstream links (assuming for the sake of discussion that channels are the same thing as links) are changed after a session has been started, then the essence of changing links before the establishment of a session as claimed in claim 4 eviscerated. It will be appreciated that once a session is established and bandwidth is assigned to the requesting subscriber using a particular physical link, bandwidth from the ISP to the CMTS remains on the same physical link. Since Vogel discloses changing upstream channels after a session has begun, claim 4 cannot be successfully achieved by following Vogel. Withdrawal of the rejection is respectfully requested.

Examiner goes on to state that although dynamic changing of links is not claimed dynamic changing of links is not precluded. As known to those skilled in the art, once a link over which bandwidth is provided from an ISP to a subscriber, via a CMTS, is established, the physical link over which the ISP and CMTS use for the session does not change for the duration of the session. It is noted that claim 4 includes all of the limitations of base claim 1. Claim one recites "receiving a request for bandwidth on one of the physical links for a first ISP. . . ." Thus, claim 4 claims requesting bandwidth over a particular link. Also as claimed in claim 1, available bandwidth is determined based on the traffic that is already allocated to established sessions. This is accomplished by subtracting the bandwidth currently being used by all subscribers of a given ISP from the total bandwidth paid for by that same IP. This is described in the specification and in the previous Amendment. This process work because once a session is established, its bandwidth is 'nailed-up' for the duration of the session for purposes of determining how

much remaining bandwidth can be allocated to future subscribers of the same ISP who wish to establish a session. Since the bandwidth is 'nailed-up' for the duration of a session, the session does not switch from link to link as other sessions are started or terminated. Thus, dynamic changing of channels, and thus links (if channels are deemed the same as links, a definition which Applicant does not advance), is precluded. Nevertheless, claim 4 has been amended to reflect this preclusion.

Regarding claims 5 and 14, Applicant has amended these claims to reflect the use of CAC algorithms.

Applicant here responds to the new grounds of rejection advanced by Examiner for claims 6, 7, 15 and 16. Examiner cites U.S. Patent Number 6,014,693 to Ito ("Ito"). The passage referenced by Examiner does not describe dropping packets when the ISP that will be transmitting the packets is oversubscribing the physical link. Indeed, a text search of the entire Ito document at www.uspto.gov does not result in any instances of either of the terms 'packet' or 'packets' being used. Thus, it appears that the remainder of the rejection of these claims is essentially that which was advanced by Examiner in the previous office action. Since examiner has advanced new grounds of rejection for the claims 6, 7, 15 and 16, it is assumed that the arguments made in the previous Amendment were persuasive based on the then cited references. Therefore, since Ito does not disclose dropping packets when an ISP has oversubscribed a physical link between the ISP and the CMTS, and Examiner has not addressed the substance of the arguments made in the previous Amendment, withdrawal of the rejection is respectfully requested.

With respect to the newly presented argument in section 7 of the office action that references Yao at col. 3, lines 12-20, it is assumed that Examiner meant to cite Ito at col. 3, lines 12-20. If Ito was intended, the argument just made that Ito does not reference loss of packets anywhere therein is maintained. If Examiner meant to cite Yao, Applicant argues that this passage does not disclose the purposeful dropping of packets. It merely describes the natural phenomenon that may occur when a data stream is being transmitted in a network element that is congested. Claims 6, 7, 15 and 16 recite purposefully loosing, or dropping, packets. Thus, all the cited elements are not found in the references in combination. Withdrawal of the rejection is respectfully requested.

With respect to the rejection of claims 6, 8-9, 15 and 17-18 in section 8 of the present office action, the rejection of claims 6, 8, 15 and 17 essentially mirrors the previous rejection with respect to the combining of Ito with Fijolek and Allen. Thus, arguments previously made are reasserted.

With respect to the rejection of claims 9 and 18, Examiner has replaced reliance in the previous office action on Official Notice that it is known in the art to "grant[] service to a requesting service reserved for a second ISP so as to provide a particular data service an assured amount of bandwidth," with reliance on Selinger allegedly teaching the granting of service to a requesting service reserved for a second ISP so as to provide a priority based bandwidth management system. Applicant disagrees with this new argument advanced by Examiner. As discussed above, Selinger relates to controlling bandwidth between the CMTS at the head end and the cable modem at the user location. Col. 7, lines 38-54. As also discussed above, the claims in the present application relate to bandwidth usage over links between an ISP and a CMTS. Furthermore, in Selinger, one or more of the users already having established sessions with the CMTS are subject to temporary downgrading of their bandwidth allowance while network conditions are

highly subscriber, and are returned to their previous levels when network conditions allow. Notwithstanding this, the claim limitations of granting to a first ISP bandwidth on a physical link between another ISP and the CMTS, such bandwidth being reserved for use for subscriber traffic of the other ISP, is not disclosed in Selinger or any of the other references. Withdrawal of the rejection is respectfully requested.

The above discussion has addressed the Examiner's comments in the 'Response to Arguments' portion of the present office action. Inasmuch as the remainder of the office action duplicates comments made in rejecting the claims in the previous office action, the responsive arguments thereto made in the previous Amendment are duplicated below. Thus, the remainder of the rejections are responded to with discussion that shows that the clams are not anticipated by Fijolek and that Examiner has not carried his burden of presenting a *prima facie* case of obviousness. Therefore, the request to withdraw the rejections of the claims is respectfully maintained hereby.

E. The Claims are not anticipated by Fijolek.

Claim 1 is amended herein to more clearly claim the unambiguously claimed subject matter claimed in the original claim; a change in scope of claim 1 is not intended.

With respect to the subject mater of the claim, claim 1 claims ". . . receiving a request for bandwidth on a cable data system link from a first ISP, wherein the request is made by a requesting subscriber . . ." This representative quote from claim 1 as amended is provided to illustrate that the claim is directed to bandwidth that is available on a link between an ISP and a CMTS. The recitation ". . . links between a cable modem termination system (CMTS) and a plurality of Internet Service Providers (ISP) . . ." in the preamble makes this clear.

Examiner asserts that the claimed features are found in Fijolek, and thus the claim is anticipated. However, as Examiner points out in a page 2 of the office action, " ' FIG. 18 illustrates a QoS server 332 used to determine whether CMTS 12 has available bandwidth to provide a specific quality-of-service request to a CM'." This passage in Fijolek refers to whether there is sufficient bandwidth on Cable Net 14 shown in FIG. 18 to dedicate a given amount of bandwidth to a requesting customer. In further reference to this, Fijolek describes the steps of "receiving a request on a first network device from a second network device to establish a connection between the second network device and a third network device with a specific quality of service." Col. 33, lines 37-41. The first, second and third network devices correspond to a QoS server, a CMTS and a cable modem, respectively. Col. 33, line 66 – col. 34, line 1.

As these passages make clear, Fijolek discusses bandwidth, and values for other QoS parameters, available on connections between the CMTS and the cable modem, not on the links between one of a plurality of ISPs and a CMTS. Therefore, Fijolek does not disclose the claimed subject matter relating to available bandwidth on a link between an internet service provider and a CMTS, because Fijolek expressly relates to the available bandwidth between the CMTS and the cable modem. Thus, determining the amount of bandwidth on a link between an ISP and a CMTS is not disclosed in Fijolek, and claim 1 is not anticipated by Fijolek. Accordingly, withdrawal of the rejection is respectfully requested.

The discussion above with respect to claim 1 applies to claim 10, as claim 1 is representative of the similar subject matter claimed in claim 10. Accordingly, withdrawal of the rejection is respectfully requested.

F. The Claims are not Obvious over the cited references

Applicant respectfully submits that the subject matter of the claims patentably distinguish over the cited references. Under MPEP § 2142, for an examiner to establish a *prima facie* case of obviousness, "three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure." If any of these three criteria are not met, the Examiner has not met the burden of establishing a *prima facie* case of obviousness, and the rejection should be withdrawn.

Furthermore, each dependent claim includes all of the limitations of the independent claim from which it depends. If an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is non-obvious. MPEP §2143.03, citing In re Fine, 837 F.2d 1071 (Fed. Cir. 1988). Applicant respectfully submits that the burden of establishing a *prima facie* case of obviousness has not been met.

G. Claims are not obvious over the cited references

The claims analyzed above are the independent claims and they patentably distinguish over the reference as discussed above. They do not stand rejected as obvious. All of the other rejected claims depend from these independent claims and therefore contain all of the limitations contained in their respective base claims. Accordingly, under MPEP §§2142 §2143.03, these dependent claims also patentably distinguish over the references and withdrawal of the rejection is respectfully requested. However, Examiner's concerns are addressed with respect to the individual obviousness rejections of the dependent claims.

With respect to the rejection of claims 2, 4, 11 and 13, the claims generally claim transferring a new subscriber from one cable data system link to another, when the available bandwidth on the present link is less than what is being requested by the subscriber attempting to establish a session. Examiner correctly states that Fijolek is silent regarding this limitation. However, Examiner states that Vogel discloses this limitation.

Examiner cites the section of Vogel that describes the process of UCC, thus rendering the limitation of these claims obvious. In doing so, Examiner equates the changing of upstream communication channel being used between a cable modem and the CMTS with the changing of the physical link between the ISP and CMTS that will carry a requesting subscriber's session.

As discussed above, the claims expressly relate to the links between a plurality of ISPs and a CMTS. These links are physical links that have a physical bandwidth maximum capacity. In contrast, not only do the channels referred to in Vogel carry

traffic between a cable modem and the CMTS, but channels are typically a virtual entity rather than physical, inasmuch as a single physical link between a cable modem and a CMTS typically carries multiple 6 MHz channels in a DOCSIS communication system. Thus, the claim limitations are not found in either of the references.

Furthermore, there is no suggestion or motivation found in the references to combine the reference teachings to arrive at the claimed subject matter. Just because Vogel discusses changing channels in the upstream direction when one channel provides less than optimum traffic-carrying characteristics does not imply or infer the changing of a physical link between an ISP and a CMTS to prevent overloading of a given link. Again, not only are the links over which a subscriber's traffic is carried as claimed located at a different network location than are the channels being changed as discussed in Vogel, the process and objective is different. In Vogel, channels are changed in order to optimize load balancing in the upstream direction. This occurs dynamically as traffic is being transported. In the present application, the links that connect a given ISP to the CMTS that connects to the subscribers are selected for a given subscriber's session based on the bandwidth availability of a given link and the other links that also connect that same ISP to the CMTS. This determination is made before the session is established, and does not change until the subscriber logs off and the session ends.

Moreover, there is not a likelihood of success in combining the reference teachings as cited by Examiner because, for one reason, the changing of links before a session is established as expressly claimed in claim 4 could not occur if changes were to be also made after establishment of a session. In addition, dynamically changing the links between an ISP and the CMTS could prevent the claimed invention from operating efficiently, or at all. This is because if the links over which a particular session are carried are continuously subject to being changed, an accurate determination of what the traffic loading is on other links could not occur because as soon as the determination and decision are made to change, the loading of the other links, as well as the current link, are likely to have changed. Thus, the link over which a particular traffic session is carried would be constantly changing as the system sought the optimum traffic balance among the plurality of links. Accordingly, claims 2, 4, 11 and 13 are not obvious over Fijolek in view of Vogel, notwithstanding that the base claims from which these dependent claim depend were not rejected as being obvious. Withdrawal of the rejection is respectfully requested.

With respect to claim 3, Examiner rejected the claim as also being obvious over Fijolek in view of Vogel. To clarify the claim, claim 3 has been amended to claim randomly transferring to a different link when the available bandwidth on the current link is less than or equal to the requested amount. Neither Fijolek nor Vogel disclose the claimed features. Examiner correctly observes that Fijolek is silent on randomly transferring a subscriber's traffic flow from one system link to another. However, Examiner concludes that is would be obvious to randomly transfer a subscriber to a different channel when the current channel degrades because degradation of a channel is random. Further, Examiner bolsters this conclusion with the statement that switching to different channels based on randomness would provide dynamic load balancing.

As discussed above, dynamic changing of links is not claimed. Available bandwidth for a given link is determined before access to that link is provided. After a traffic flow is established on a given link, that flow is not transferred to a different link.

Randomly transferring a traffic flow that is still in the set-up stage from one link to another when the present link cannot accommodate the requested amount of bandwidth is one embodiment of a method for preventing oversubscribing of the link. By randomly changing to another link rather than evaluating the other links that may be available first, a probabilistic assumption is made that a different link will have more available bandwidth. While this may not turn out to be the case, reduced set-up time may be the result when this method is employed at typically low usage times of the day or night, thus providing the requesting subscriber with reduced connectivity wait times. Withdrawal of the rejection is respectfully requested.

Claims 5 and 14 are rejected as being unpatentable over Fijolek in view of Allen. However, in reference to the analysis above, not only are not all of the elements of the claims found in the references, either alone or in combination, but the references teach away from the claimed limitations. As disclosed in the present application, ". . . CAC principles from ATM networks [are] applied to traffic control within a CMTS" to control traffic loading on Ethernet links. Page 5, lines 16-18. Thus, the claimed elements may use CAC-like algorithms, whereas the reference expressly teaches that CAC procedures are not used, as discussed above in the summary of Allen.

Furthermore, notwithstanding that Allen teaches away from the claimed elements, the passage cited by Examiner pertains to bandwidth that is not influenced by the limitations of the medium over which traffic is being carried. The passage in Allen gives a formula that is used to allow a user to establish a session, even if available bandwidth is not available. Formula 23, shown at col. 23, line 33, subtracts the sum of minimum flow rates for multiple sessions from a server's maximum capacity. This makes sense since the Allen specification relates to "bandwidth allocation for delivery of stored digital content from at least one server device to at least one client device . . . ." Abstract. Thus, the result when Formula 23 is evaluated clearly does not vary based on the amount of bandwidth that is available on a requested system link. Therefore, the references do not disclose the elements in the claim, nor do they teach or suggest the claimed features. Accordingly, the claims patentably distinguish over the references, and withdrawal of the rejection is respectfully requested.

Claims 6, 7, 15 and 16 stand rejected as being unpatentable over Fijolek in view of Allen and further in view of Yao. Examiner correctly states that Fijolek and Allen do not disclose the losing of packets when a channel is oversubscribed. It will be appreciated that in the context of the present application, the operative term is 'link', not channel.

Regarding Examiner's statement, Applicant traverses the assertion that Yao teaches the claimed limitations. The claims have been amended to more clearly point out the patentable features, although original claims 6, 7, 15 and 16 stand on their own without amendment. Accordingly, the amendment does not change the scope of these claims. However, this amendment of these claims makes it clear that when packets are lost when a link is oversubscribed, this losing of packets does not occur naturally, as is the case in Yao, col. 3, lines 55-63, but as the result of predetermined and controlled operation by the CMTS. Support for this is found in the specification at page 10, line 21 – page 11, line 3. Thus, rather than merely describing the phenomenon of packets that are inadvertently lost as a result of oversubscribing a channel as in Yao, the claims claim intentional losing, or dropping, of packets, as determined by an algorithm-controlled

operation of the CMTS. Accordingly, the elements of the claim are not found in the references, and thus the claims are not obvious over the combined references. Withdrawal of the references is respectfully requested.

Claims 6, 8, 15 and 17 stand rejected as obvious over Fijolek in view of Allen further in view of Selinger. Examiner asserts that priority ordered queues result in subscribers having a higher level of service having fewer lost packets. Examiner cites Col. 1, lines 49-63 for this proposition. However, the cited passage discusses that traffic corresponding to a user having lower levels of service may incur longer delays in reaching a destination than those of a user having a high level of service. There is nothing in the reference that discusses loosing packets. While it may be true that for certain types of traffic, for example voice, delayed traffic typically results in lost packets, this is an inevitable consequence of the type of traffic involved. However, the claims refer to a method that intentionally drops, or loses, packets so that overall system traffic loading is as balanced as possible. The cited reference may intentionally delay certain traffic based on the subscribed-to level of service, but there is no intentional dropping of packets referred to in the references, either expressly or impliedly. Thus, all the elements of the claims are not found in the references, nor is there a reasonable suggestion that the references in combination would result in the claimed subject matter. Accordingly, the claims patentably distinguish over the references, and withdrawal of the rejection is respectfully requested.

Claims 9 and 18 stand rejected over Fijolek, although Examiner states that Fijolek is silent on granting service to a requesting service reserved for a second ISP. Examiner states that it is known in the art to grant service (Applicant assumes Examiner means additional service over and above what a given MSO dedicates for a given ISP) so that a user of another ISP can obtain service from its associated ISP, to the exclusion of the ISP to which the reallocated service has been previously contractually allotted. The use of the concept of contractually obligated service, *i.e.*, bandwidth, is used here to illustrate that an MSO provides bandwidth to multiple ISPs, and that the proportional amount of total bandwidth capacity that is allocated to a given ISP by an MSO is typically determined by how much bandwidth an ISP contracts for. This is not a limitation (being contractually determined) that Applicant is attempting to read into the claims, but is given merely for illustration purposes.

Examiner has provided no support for the assertion that bandwidth that has been rightfully allocated to an ISP is diverted for use by a subscriber of another ISP other than to conclusionally state that it would be obvious. Applicant respectfully request that Examiner provide a basis for this conclusion, or withdraw the rejection.

SUMMARY

For all the reasons advanced above, Applicant respectfully submits that the application is in condition for allowance and that action is earnestly solicited.

If the Examiner believes that there are any issues that can be resolved by a telephone conference, or that there are any informalities that can be corrected by an Examiner's amendment please contact the undersigned at the mailing address, telephone, facsimile number, or e-mail address indicated below.

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Internet service provider

From Wikipedia, the free encyclopedia

An **Internet service provider** (**ISP**, also called **Internet access provider** or **IAP**) is a business or organization that offers users access to the Internet and related services. Many but not all ISPs are telephone companies. They provide services such as nternet transit, domain name registration and hosting, dial-up or DSL access, leased line access and colocation.

nternet hosting services run servers, provide managed hosting, and include the Internet connection.

Contents

ISP connection options

Generally, an ISP charges a *monthly* access fee to the consumer. The consumer then has access to the Internet, although the speed at which this data is transferred varies widely.

nternet connection speed can generally be divided into two categories: dialup and broadband. Dialup connections require the use of a phone line, and usually have connections of 56 kbit/s or less. Broadband connections can be either ISDN, Broadband wireless access, Cable modem, DSL, Fiber Optics, Satellite or Ethernet. Broadband is always on (except ISDN that is a circuit switching technology), and varies in speed between 64 Kb and 20 Mb per second or more.

With the increasing popularity of file sharing and downloading music and the general demand for faster page loads, higher bandwidth connections are becoming more popular.

Virtual ISP

A Virtual ISP (vISP) re-sells to the general public Internet access purchased from a wholesale ISP. The vISP's role is to provide any services beyond Internet connectivity, such as e-mail, web hosting, and technical support. The vISP must perform all authentication and accounting functions necessary to provide access and then bill their users for it. This model allows for larger ISPs to increase returns on their investment into what is generally a geographically large, high capacity network, a network which smaller ISPs as customers of the larger ISP can use to serve customers in locations that would previously have been unavailable to them.

History

The history of Internet Service Providers is integral to the development of the formation of the modern internet, as well as the economic impact it had on the world. Commercial use of the Internet began in the early 1990s, with companies like MindSpring serving limited customers and connections starting in 1994. Many started out as small companies with home made software, and server facilities in their garages. Users would pay around $20 (£11.50) to $40 (£23) for a dial-up connection. Connection speeds ranged from 9.6 kbit/s to 14.4 kbit/s, and connections were unreliable. At the same time, larger companies

uch as America Online had their own networks and proprietary software for connecting - therefore AOL was a separate etwork from the Internet, and one that no longer exists.

/.90 was developed in 1998, bringing download speeds up to 56 kbit/s. Larger companies began to offer Internet services, ropelling acceptance of the Internet through advertising. Internet prices also began to stabilize. The price for a dialup onnection became $19.95 a month.

3y the 2000s, the battle over broadband also began to appear. DSL, which was over phone lines, was an option for traditional SPs. Cable companies also became ISPs by offering cable modem access. During the late 90s and early 2000s these echnologies were in intense competition. Pricing, technology, and market share drove the Internet economy. Smaller ISPs owever did not have access to the cable system and DSL was too expensive. Many small ISPs began using wireless echnology to provide broadband access. Using this wireless technology fueled the way for wireless networks that are in ommon use today.

n 2000, The dot-com bust proved a serious threat to the established ISPs. Smaller ISPs offering low-cost internet served a najor challenge, as well as an overall slump in the economy. Popularity of the Internet was still on the rise but the companies roviding the services were finding a hard time breaking even. Many of the small ISPs still functioned as normal as they perated on revenues and not overinflated stocks.

As of 2005, the larger ISPs are turning a profit, often through a combination of wireless, wired and content services, all ubscription based. One major challenge in the near future is that of free wireless broadband access, possibly provided as a nunicipality.

ISP liability for third party content

nternet Service Providers are key players in the online world. As they have physical control over the content (gatekeepers) one ey issue is the question if and to what extent they should be made responsible for third party content. For example: should AOL be responsible for libellous content posted by a user in one of their forums? Should the victim of that libel be able to orce AOL to take that content down?

The US Liability Regime

The US approach to ISP liability is more sporadic than systematic. The respective statutes only regulate ISP liability in regards o their capacity as publishers and in regards to copyrighted content.

47 U.S.C. sec 230, which immunizes ISP from liability as publishers, was obscurely enacted as an amendment of the Communications Decency Act of 1996 (CDA). The expressed aim of the CDA was fighting pornography on the internet. The mmunisation of ISPs was seen more as a necessary condition to enable ISPs to contribute to this task after they were liscouraged to do so in consequence of *Stratton Oakmont v Prodigy*.

As it turned out in the end, the CDA was ruled unconstitutional, but 47 U.S.C. sec 230 stayed in place, serving as a blanket hield from liability for all ISPs, even those who do not monitor or that have taken notice of the libellous content on their sites.

17 U.S.C sec 512, which was enacted as part of the Digital Millennium Copyright Act (DMCA) in 1998, creates a safe harbour or ISPs against copyright liability if they subscribe to a code of practice relating to notice, take-down and put-back. Therefore he DMCA imposes heavier burdens on ISPs in regards to copyrighted content than the CDA does in regards to libellous ontent.

Whereas the DMCA provisions are mainly seen as a fair and balanced approach, the insulation by the CDA and its broad pplication through US courts has often been criticised as being too soft on ISPs and to little protective of victims. The cases *Zeran v America Online* and *Blumenthal v Drudge*, two cases in which AOL was not held liable for libellous content and could ot be forced to take the content down, are often considered as examples of undue insulation of ISPs.

The Liability Regime of the European Union

The European Union dealt with the problem of ISP liability in a broad and comprehensive manner. The key norms are art. 12-5 of the Directive 2000/31/EC on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (Directive on electronic commerce) of June 8, 2000. By dealing with various activities separately (mere conduit, caching, hosting) it aims to provide a balanced solution. In regards to the content however the directive follows a horizontal approach and does not distinguish between different kinds of content. This is a major difference to the US where legislation was drafted to tackle specific problems connected to specific content and which led to the fragmentation of the liability regime.

Related services

- Broadband access
  - Digital Subscriber Line
  - Fixed wireless access
  - Cable
  - Triple play
- Internet hosting service
  - Web hosting service
  - E-mail hosting service
  - DNS hosting service
- Dynamic DNS

See also

- Network service provider
- Peering
- Bandwidth cap
- IP transit

External links

- competitive-isp.info (http://www.competitive-isp.info/) Book on Internet Service Providers

Retrieved from "http://en.wikipedia.org/wiki/Internet_service_provider"

Category: Internet service providers